

UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
KANSAS CITY, MISSOURI 64106

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In the matter of the petition of

Regulatory Docket No. 053CE

AYRES CORPORATION

for an exemption from § 3.83  
of the Civil Air Regulations

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GRANT OF EXEMPTION

By letter dated December 22, 1987, Mr. Milton R. Humphries, Vice President of Operations, Ayres Corporation, Post Office Box 3090, Albany, Georgia 31708, petitioned for exemption from Civil Aeronautics Manual (CAM) 8, Appendix B, paragraph B.121 of the Civil Air Regulations (CAR) to permit certification of the Ayres Model S2R-HG-T65 Airplane with a stall speed greater than the 70-mile-per-hour maximum stall speed limit recommended by Appendix B of CAM 8.

Section of the CAR affected:

Section 3.83 of Part 3 of the Civil Air Regulations requires, in pertinent part, that the stalling speed ( $V_{SO}$ ) of a single engine airplane at maximum weight shall not exceed 70 miles per hour.

The petitioner's supportive information is as follows:

The United States Department of State has awarded a contract to Ayres Corporation for a fixed-wing agricultural spray aircraft to be used by the Department of State for eradication of narcotics crops overseas.

Ayres Corporation intends to provide a modified version of their "Turbo Thrush" Model S2R-T65, which will be recertificated to a maximum weight of 10,500 pounds and redesignated as the Model S2R-HG-T65 airplane. The Model S2R-T65 is currently certificated in the restricted category at a maximum weight of 6,000 pounds. The Model S2R-HG-T65 complies with the 70-mile-per-hour maximum stall speed limit at a weight of 6,000 pounds, but does not comply at a weight of 10,500 pounds. The airplane has a demonstrated capability to jettison the entire contents of the agricultural hopper in less than five seconds. After hopper dump, the airplane will be at or below 6,000 pounds and will then meet the required 70-mile-per-hour maximum stall speed limit.

Petitioner states that literal compliance with the 70-mile-per-hour maximum stall speed limit would require substantial redesign of the airplane wing. The redesign would require an increase in wing area by as much as 70 percent, and would severely compromise the ability of the design to meet the mission requirements.

The Model S2R-HG-T65 Airplane is ideally suited to the special mission defined by the Department of State by providing maximum speed, ground and flight maneuverability, and a hopper capacity of over 4,000 pounds. Petitioner contends that failure of the FAA to grant the exemption requested would compromise the adequacy of the Model S2R-HG-T65 to meet its intended drug eradication mission and would have a serious adverse effect on coca and opium eradication programs intended to help stem the flow of illicit drugs into the United States. Further, petitioner states that delays in delivery of these airplanes to the Department of State would jeopardize the United States Government's ability to meet its commitment to foreign governments and would have a serious adverse effect on the drug eradication program. Since the contract requires delivery of the first airplane prior to February 1, 1988, petitioner requests disposition of this petition without publication of a summary of petition for exemption.

The airplane is equipped with a massive overturn structure, consisting of a network of 17 chrome molybdenum tubes ranging up to 1.5 inches in diameter with .083 inch wall thickness. The structure is designed for vertical and horizontal loads of 31,500 pounds and 15,750 pounds respectively, and contributes greatly to the high survivability accident record enjoyed by the Model S2R-T65 Airplanes.

Finally, petitioner states that pilot restraint system on the Ayres Model S2R-HG-T65 consists of a Spinks design pilot seat and American Safety (Flight Systems, Inc.) seatbelt and shoulder harness. The Spinks design seat meets both TSO-C-39 and MIL-5-5822. The American Safety seatbelt and shoulder harness assembly meets NAS-802 and TSO C-22F. Petitioner states that the pilot restraint system has been tested to loads exceeding the highest combination of loads required by CAR-3 or recommended by CAM-8 and that this system provides a rugged installation typical of military aircraft.

The Federal Aviation Administration (FAA) has determined that, for good cause shown in the petition, action on the petition should not be delayed by publication and comment procedures.

The Federal Aviation Administration's (FAA) analysis/summary is as follows:

To obtain the exemption, the petitioner must show, as required by § 11.25(b)(5) of the Federal Aviation Regulations, that: (1) granting the request is in the public interest, and (2) the grant of the exemption would not adversely affect safety, or (3) that a level of safety will be provided which is equal to that provided by the rule from which the exemption is sought.

The FAA has carefully reviewed the petitioner's request, the applicable type certification requirements, current FAA policy related to restricted

category certification for agricultural purposes, and the intended mission of this airplane for operation by the Department of State.

Civil Air Regulation (CAR) 8, Section 8.10(a)(1) requires, in pertinent part, that an airplane may be certificated in the restricted category if it is shown to comply with the airworthiness requirements of any other category of the CAR, except for those requirements which the Administrator finds inappropriate for the special purpose for which the aircraft is to be used.

The Ayres Model S2R-HG-T65 is a growth version of an airplane initially certificated in the normal category using CAR-3, Amendment 3-1 through 3-8 as the certification basis. CAR Section 3.83 states, in pertinent part, that the stalling speed at maximum weight shall not exceed 70 miles-per-hour for single engine aircraft.

The FAA has determined that § 3.83 is appropriate for airplanes used for the special purpose of agricultural operation and intends to continue to require the 70 mile-per-hour limit on future certifications in the restricted category for that special purpose. Further, the policy material listed in CAM-8 is not regulatory in nature and cannot be used as a basis for airworthiness certification. That policy material is intended to be used as guidance to assist the applicant in selecting which airworthiness requirements are appropriate for the special purpose intended. Therefore, this exemption is written for CAR 3.83 in lieu of CAM 8, Appendix B, paragraph B.121, as requested by the petitioner.

The FAA agrees that the proposed exemption would be in the public interest provided operations are limited to those described in the petition. As noted by the petitioner, these airplanes will be operated by the United States Department of State for the purpose of drug eradication programs overseas. Although only operations pursuant to this contract are envisioned at present, the FAA considers these factors equally applicable to drug eradication programs on behalf of the Department of State by contractors or by other governments, and that such operations should include crew training in the specific configuration.

Part 137 contains the requirements for agricultural aircraft operations. Section 137.53 requires, in pertinent part, that for operation over congested areas the airplane must be equipped with a device capable of jettisoning at least one-half of the aircraft's maximum authorized load of agricultural material within 45 seconds. The FAA recognizes that the demonstrated ability to jettison 100 percent of the agricultural hopper weight within five seconds far exceeds the requirement for operation over congested areas. In addition, the FAA recognizes that the airplane complies with the 70-mile-per-hour maximum stall speed limit with an empty hopper. The FAA agrees that the ability to dump the hopper in the short time discussed, the massive overturn structure, and the pilot restraint system combine to provide some compensation for the reduction in the level of safety caused by the increased stall speed.

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Pursuant to the authority contained in Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to me by

the Administrator, Ayres Corporation is hereby granted an exemption from Section 3.83 of the CAR to the extent required to permit certification of the Model S2R-HG-T65 Airplane having a stall speed greater than the 70 mile-per-hour maximum limit subject to the following conditions and limitations:

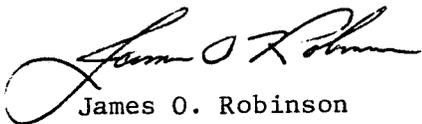
1. The type certificate must contain a limitation specifying that the affected airplane is to be operated at gross weights in excess of 6,000 pounds only by, or on behalf of, the United States Department of State for the purpose of drug eradication. In this regard, operations on behalf of the United States Department of State are considered to include drug eradication by contractors or by other governments and are considered to include incidental operations, such as crewmember training, as well as the actual drug eradication operation.

2. Each crewmember must be provided with a pilot restraint system consisting of a Spinks design pilot seat, Part No. 19691T010 and an American Safety (Flight Systems, Inc.) seatbelt and shoulder harness system Part No. 501226-211.

3. It must be demonstrated that the pilot can jettison the entire contents of the agricultural hopper within five seconds.

4. The airplane must comply with § 3.83 of the Civil Aviation Regulations at weights less than 6,000 pounds.

Issued in Kansas City, Missouri on January 21, 1988.



James O. Robinson  
Acting Director, Central Region